

# BEST AVAILABLE COPY

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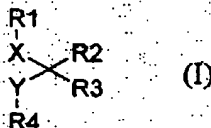
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Please amend the application as follows:

In the claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (currently amended) A compound of general Formula I



or a pharmaceutically acceptable salt or solvate thereof, or a solvate of such a salt, wherein:

R<sub>1</sub> is selected from the group consisting of:

C<sub>2</sub>-C<sub>6</sub> alkyl, substituted with one or more basic groups, wherein the conjugate acid of said basic group has a ~~pka~~ pKa of from 1 to 15;

cycloalkyl, substituted with one or more basic groups, wherein the conjugate acid of said basic group has a ~~pka~~ pKa of from 1 to 15;

~~six-membered heterocyclyl, comprising at least one nitrogen atom~~ containing a single heteroatom, which heteroatom is nitrogen, and substituted with one or more basic groups, wherein the conjugate acid of said basic group has a ~~pka~~ pKa of from 1 to 15;

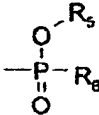
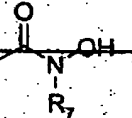
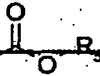
~~heterocyclyl, comprising at least one heteroatom selected from S or O, and substituted with one or more basic groups, wherein the conjugate acid of said basic group has a pka of from 1 to 15;~~ and aryl, substituted with one or more basic

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groups, wherein the conjugate acid of said basic group has a ~~pKa~~ pKa of from 1 to 15;

$R_2$  is selected from the group consisting of H, methyl, ~~acyl~~, ~~acylamino~~, ~~alkyl~~, ~~alkylearbamoyl~~, ~~alkylthio~~, ~~alkoxy~~, ~~aroxy~~, ~~aroxyamino~~, ~~aryloxy~~, ~~arylthio~~, ~~amidino~~, ~~amino~~, ~~aryl~~, ~~carbamoyl~~, ~~carboxy~~, ~~cyano~~, ~~cycloalkyl~~, ~~formyl~~, ~~guanidino~~, ~~halogen~~, ~~heterocyclyl~~, and hydroxy, ~~exo~~, ~~nitro~~, ~~thiol~~,  ~~$Z_2N-CO-O$~~ ,  ~~$ZO-CO-NZ$~~ , and  ~~$Z_2N-CO-NZ$~~ ;

$R_3$  is selected from the group consisting of  $COOR_5$ ,  $SO(OR_5)$ ,  $SO_3R_5$ ,  $P=O(OR_5)_2$ ,  $B(OR_5)_2$ ,  $P=OR_5(OR_5)$ , tetrazole, and a carboxylic acid isostere;

$R_4$  represents a -group, or a -group, or a -group;

$R_5$  is H,  $C_1-C_6$  alkyl, or aryl;

$R_6$  is  $C_1-C_6$  alkyl, aryl, cycloalkyl, ~~heterocyclyl~~, or an optionally N-substituted

$H_2N-C(Z)-CONH-C(Z)-$  or  $H_2N-C(Z)-$  group;

~~$R_1$  is H or  $C_1-C_6$  alkyl;~~

~~$X$  is selected from the group consisting of O, S, SO,  $SO_2$ ,  $C(Z)_2$ ,  $N(Z)$ ,  $NR_1SO_2$ ,  $SO_2NR_1$ ,  $NR_1CO$ , and  $CONR_1$ ;~~

~~$Y$  is selected from the group consisting of O,  $N(Z)$ , S,  $C(Z)_2$ , and a single bond O and S; and~~

$Z$  is independently selected from the group consisting of H,  $C_1-C_6$  alkyl, aryl, cycloalkyl, and heterocyclyl[[,]]

~~with the provisos (1) that when  $X$  is O, S, SO,  $SO_2$ ,  $N(Z)$ ,  $NR_1SO_2$ ,  $SO_2NR_1$ , or  $NR_1CO$ , then  $Y$  is  $C(Z)_2$  or a single bond and (2) when  $X$  is  $CH_2$ ,  $Y$  is a single bond,  $R_2$  is H,  $R_3$  is  $CO_2H$  and  $R_4$  is  $CO_2H$ , then  $R_1$  is not  $CH_2CH(OH)$  (1H-1,2,4-triazol-5-yl),~~

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~~CH<sub>2</sub>CH(OH) (1-trityl-1H-1,2,4-triazol-5-yl), CH<sub>2</sub>CH<sub>2</sub>NH<sub>2</sub> or~~  
~~CH<sub>2</sub>CH<sub>2</sub> (1-aminoanthra-9,10-quinone).~~

2. (currently amended) The compound according to claim 1, or a pharmaceutically acceptable salt or solvate thereof, or a solvate of such a salt, wherein:

R<sub>1</sub> is selected from the group consisting of:

cycloalkyl, substituted with one or more basic groups, wherein the conjugate acid of said basic group has a pKa of from 1 to 15; and

six-membered heterocyclyl, comprising at least one nitrogen atom containing a single heteroatom, which heteroatom is nitrogen, and substituted with one or more basic groups, wherein the conjugate acid of said basic group has a pKa of from 1 to 15; and

~~heterocyclyl, comprising at least one hetero atom selected from S or O, and substituted with one or more basic groups, wherein the conjugate acid of said basic group has a pKa of from 1 to 15,~~

~~R<sub>2</sub> is selected from the group consisting of H, C<sub>1</sub>-C<sub>3</sub> alkyl, amino, halogen, and hydroxy,~~

R<sub>3</sub> is COOR<sub>5</sub>;

R<sub>4</sub> represents a  $\begin{array}{c} \text{O}-\text{R}_5 \\ | \\ \text{P}-\text{R}_6 \\ || \\ \text{O} \end{array}$  group.

~~R<sub>5</sub> is H, C<sub>1</sub>-C<sub>6</sub> alkyl, or aryl,~~

~~R<sub>6</sub> is C<sub>1</sub>-C<sub>6</sub> alkyl, aryl, cycloalkyl, heterocyclyl, or an optionally N-substituted~~

~~H<sub>2</sub>N-C(Z)-CONH-C(Z)- or H<sub>2</sub>N-C(Z)- group,~~

~~X is C(Z)<sub>2</sub>~~

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Y is O or ~~C(Z)~~<sub>2</sub>; and

Z is independently H or C<sub>1</sub>-C<sub>6</sub> alkyl.

3-26. (cancelled)

27. (new) The compound according to claim 1 or a pharmaceutically acceptable salt or solvate thereof, or a solvate of such a salt, wherein:

R<sub>6</sub> is optionally substituted by one or more selected from the group consisting of acyl, acylamino, C<sub>1</sub>-C<sub>6</sub> alkyl, alkylcarbamoyl, alkylthio, alkoxy, aroyl, aroylamino, aryloxy, arylthio, amidino, amino, aryl, carbamoyl, carboxy, cyano, cycloalkyl, formyl, guanidino, halogen, hydroxy, oxo, nitro, thio, Z<sub>2</sub>N-CO-O-, ZO-CO-NZ- and Z<sub>2</sub>N-CO-NZ-;

in which said C<sub>1</sub>-C<sub>6</sub> alkyl, cycloalkyl, and aryl are each optionally substituted by one or more selected from the group consisting of acyl, acylamino, C<sub>1</sub>-C<sub>6</sub> alkyl, alkylcarbamoyl, alkylthio, alkoxy, aroyl, aroylamino, aryloxy, arylthio, amidino, amino, aryl, carbamoyl, carboxy, cyano, cycloalkyl, formyl, guanidino, halogen, hydroxy, oxo, nitro, thio, Z<sub>2</sub>N-CO-O-, ZO-CO-NZ- and Z<sub>2</sub>N-CO-NZ-; and

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each Z, which is defined in claim 1, is independently and optionally substituted by one or more selected from the group consisting of acyl, acylamino, C<sub>1</sub>-C<sub>6</sub> alkyl, alkylcarbamoyl, alkylthio, alkoxy, aroyl, aroylamino, aryloxy, arylthio, amidino, amino, aryl, carbamoyl, carboxy, cyano, cycloalkyl, formyl, guanidino, halogen, hydroxy, oxo, nitro, thio, Z<sub>2</sub>N-CO-O-, ZO-CO-NZ- and Z<sub>2</sub>N-CO-NZ-.

28. (new) The compound according to claim 27 or a pharmaceutically acceptable salt or solvate thereof, or a solvate of such a salt,

wherein:

R<sub>6</sub> is optionally substituted by one or more selected from the group consisting of C<sub>1</sub>-C<sub>6</sub> alkyl, aryl and ZO-CO-NZ-,

in which said C<sub>1</sub>-C<sub>6</sub> alkyl and aryl are each optionally substituted by one or more selected from the group

consisting of aryl, oxo and ZO-CO-NZ-, and

each Z, which is defined in claim 1, is independently and optionally substituted by aryl.

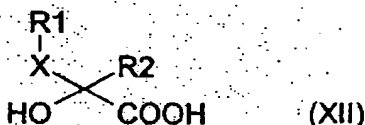
29. (new) A process for the preparation of a compound according to any one of claims 1, 2, 27 and 28,

wherein R<sub>1</sub>, R<sub>2</sub>, R<sub>4</sub>, R<sub>5</sub>, R<sub>6</sub>, X and Z are as defined in claim 1, R<sub>3</sub> is COOR<sub>5</sub>, and Y is O,

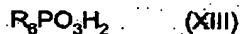
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comprising the step of:

reacting a compound of Formula XII,



wherein X, R<sub>1</sub> and R<sub>2</sub> are as defined in claim 1, with a compound of Formula XIII,



wherein R<sub>6</sub> is as defined in claim 1, in the presence of a coupling reagent under standard conditions.

30. (new) A pharmaceutical formulation comprising a therapeutically effective amount of a compound according to any one of claims 1, 2, 27 and 28 as active ingredient in combination with a pharmaceutically acceptable adjuvant, diluent, or carrier.

31. (new) A method for inhibiting carboxypeptidase U, comprising administering an effective amount of a compound according to any one of claims 1, 2, 27 and 28.

32. (new) A pharmaceutical formulation, comprising:

- (i) a compound of Formula I as defined in any one of claims 1, 2, 27 and 28, or a pharmaceutically acceptable salt or solvate thereof, or a solvate of such a salt; and
- (ii) one or more antithrombotic agents with a different mechanism of action from that of component (i),

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in admixture with a pharmaceutically acceptable adjuvant, diluent, or carrier.

33. (new) A method both for inhibiting carboxypeptidase U and for achieving an antithrombotic effect via a different mechanism, which method comprises administering a therapeutically effective total amount of:
- (i) a compound as defined in any one of claims 1, 2, 27 and 28, or a pharmaceutically acceptable salt or solvate thereof, or a solvate of such a salt, in admixture with a pharmaceutically acceptable adjuvant, diluent or carrier; and
  - (ii) one or more antithrombotic agents with a different mechanism of action from that of component (i), in admixture with a pharmaceutically acceptable adjuvant, diluent, or carrier.
34. (new) A method both for inhibiting carboxypeptidase U and for achieving an antithrombotic effect via a different mechanism, which method comprises administering the formulation according to claim 32.
35. (new) The compound according to any one of claims 1, 2, 27 and 28, wherein the basic group is selected from the group consisting of amino, amidino, and guanidino.
36. (new) The process according to claim 29, wherein the coupling reagent is selected from the group consisting of:
- (i) dicyclohexylcarbodiimide (DCC)/N,N-dimethyl amino pyridine (DMAP);
  - (ii) (benzotriazol-1-yloxy)tripyrrolidinophosphonium hexafluorophosphate (PyBop)/ diisopropylethylamine (DIPEA);

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and

(iii)  $\text{SOCl}_2$ .

37. (new) The formulation according to claim 32, wherein the antithrombotic agent with a different mechanism of action is selected from the group consisting of an antiplatelet agent, thromboxane receptor inhibitor, synthetase inhibitor, fibrinogen receptor antagonist, prostacyclin mimetic, phosphodiesterase inhibitor, and an ADP-receptor ( $\text{P}_2\text{T}$ ) antagonist.

38. (new) The method according to claim 33, wherein the antithrombotic agent with a different mechanism of action is selected from the group consisting of an antiplatelet agent, thromboxane receptor inhibitor, synthetase inhibitor, fibrinogen receptor antagonist, prostacyclin mimetic, phosphodiesterase inhibitor, and an ADP-receptor ( $\text{P}_2\text{T}$ ) antagonist.

39. (new) A method for treatment of thrombosis and hypercoagulability, comprising administering to a patient in need of such treatment an effective amount of a compound according to any one of claims 1, 2, 27 and 28.



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